

Listing of Claims:

Claim 1 (Previously presented) A process for preparing a free-flowing, phase-stabilized ammonium nitrate, said process comprising the following steps:

preparing a solution of ammonium nitrate, a surfactant, an inert liquid, and an ammonium nitrate phase stabilizer, said ammonium nitrate, said surfactant, and said phase stabilizer being soluble in said inert liquid, the amount of surfactant in said solution being about 0.01% to about 0.15% based on the combined weight of the ammonium nitrate and the surfactant;

atomizing the solution to form a stream of droplets;

freeze-drying the droplets to form agglomerates of crystals of phase stabilized ammonium nitrate, the crystals of phase stabilized ammonium nitrate in the agglomerates being coated with a film comprising the surfactant; and

disintegrating the agglomerates into separated free-flowing phase stabilized ammonium nitrate crystals coated with a film comprising a surfactant.

Claim 2 (Original) The process of claim 1 wherein the inert liquid is water.

Claim 3 (Original) The process of claim 2 wherein the surfactant is a polyvinyl pyrrolidone.

Claim 4 (Original) The process of claim 1 wherein the phase stabilized ammonium nitrate crystals have an average diameter of about 1 μ m to about 20 μ m.

Claim 5 (Cancelled)

Claim 6 (Original) The process of claim 1 wherein the phase stabilizer comprises potassium nitrate.

Claim 7 (Original) The process of claim 1 wherein the freeze-drying step comprises:

cooling the stream of droplets to a temperature below the freezing point of the solution of ammonium nitrate, inert liquid, surfactant, and phase stabilizer, and

sublimating the frozen droplets to remove the inert liquid from the frozen droplets and form the phase stabilized ammonium nitrate.

Claim 8 (Original) The process of claim 7 wherein the cooling step is performed by contacting the stream of droplets with a cooling means maintained at temperature below about -130°C.

Claim 9 (Original) The process of claim 8 wherein the cooling means is a drum with outer surface temperature of below about -130°C.

Claim 10 (Cancelled)

Claim 11 (Previously presented) A process for preparing phase-stabilized ammonium nitrate comprising the steps of:

preparing an aqueous solution of ammonium nitrate, a surfactant, and potassium nitrate, the amount of surfactant in said solution being about 0.01% to about 0.15% based on the combined weight of the ammonium nitrate and the surfactant;

atomizing the aqueous solution to form a stream of droplets;

cooling the stream of droplets to a temperature below the freezing point of the solution;

sublimating the frozen droplets to remove the water from the frozen droplets to form agglomerates of crystals of phase stabilized ammonium nitrate, said crystals of phase stabilized ammonium nitrate in the agglomerates being coated with a film of surfactant; and

disintegrating the agglomerates into separated free-flowing phase stabilized ammonium nitrate crystals coated with a film comprising the surfactant.

Claim 12 (Original) The process of claim 11 wherein the phase stabilized ammonium nitrate crystals have an average diameter of about 1 μ m to about 20 μ m.

Claim 13 (Canceled)

Claim 14 (Canceled)

Claim 15 (Currently amended) A process for preparing a free-flowing, phase-stabilized ammonium nitrate, said process comprising the following steps:

preparing a solution of ammonium nitrate, a surfactant, an inert liquid, and an ammonium nitrate phase stabilizer, said ammonium nitrate, said surfactant, and said phase stabilizer being soluble in said inert liquid;

atomizing the solution to form a stream of droplets;

freezing said stream of droplets by contacting said stream of droplets with a an outer surface of a drum, said surface being maintained at temperature below the freezing point of said solution by passing a cooling medium through the interior of the said drum;

sublimating the frozen droplets to remove the inert liquid from the frozen droplets and form agglomerates of the phase stabilized ammonium nitrate; and

disintegrating the agglomerates into separated free-flowing phase stabilized ammonium nitrate crystals coated with a film comprising the surfactant.

Claim 16 (Previously presented) The process of claim 15 wherein the inert liquid is water.

Claim 17 (Previously presented) The process of claim 15 wherein the surfactant is a polyvinyl pyrrolidone.

Claim 18 (Previously presented) The process of claim 15 wherein the phase stabilized ammonium nitrate crystals have an average diameter of about $1\mu\text{m}$ to about $20\mu\text{m}$.

Claim 19 (Previously presented) The process of claim 15 wherein the amount of surfactant in the solution is from about 0.01% to about 0.15% based upon the combined weight of the ammonium nitrate and the surfactant.

Claim 20 (Previously presented) The process of claim 15 wherein the phase stabilizer comprises potassium nitrate.